

In the Office Action, Claims 20-29 were rejected under 35 U.S.C. 103(a) as being unpatentable over Saeki et al. (U.S. Patent No. 6,078,727; hereinafter “Saeki”) in view of Lenihan et al. (U.S. Patent No. 6,169,843; hereinafter “Lenihan”).

Brief Discussion of Claimed Invention

Amended Claim 20 recites, among other features, a data structure stored on said information medium including: a stream object,¹ formed of the stream data, including at least one first data unit,² at least one second data unit³ having the at least one first data unit, and at least one third data unit⁴ having the at least one second data unit, the at least one third data unit storing header information⁵ relating to the at least one first data unit in the at least one third data unit.

These features are also recited in Claim 1 of Ando et al. (U.S. Patent No. 6,373,803; hereinafter “Ando”); however, amended Claim 20 is patentably distinguishable from Claim 1 of Ando, as amended Claim 14 also recites a formatter configured to format an input signal into a bitstream of data packets for an MPEG transport stream, said data packets corresponding to the at least one first data unit; and a recorder section configured to record the bitstream in the data area of said information medium.

Amended Claim 25 and new Claims 30 and 31 recite features similar to those discussed above, but are also patentably distinguishable over Claim 1 of Ando for the below reasons:

Amended Claim 25 recites one or more of the data units included in the stream data, each one of the data units including one or more data packets configured to record time stamp information, and management information including information indicating an arrival time of

¹ e.g., Specification at (STREAM OBJECT (SOB) #B299), Figure 1(h).

² e.g., Specification at (TRANSPORT PACKET 1a), Figure 1(g).

³ e.g., Specification at (SECTOR NO. 1), Figure 1(d).

⁴ e.g., Specification at (STREAM BLOCK (SOBU) # α), Figure 1(i).

⁵ e.g., Specification at (PACK HEADER 11), Figure 1(c).

a first packet of one of the data units, wherein said information medium has a data area for recording the stream data using the one or more data packets, one of the data units being larger than the one or more data packets, and a management area for recording management information.

New Claim 30 recites a receiver block configured to receive the stream data with said data structure, and a recorder block configured to record the stream data, received by said receiver block, on the information medium.

New Claim 31 recites a reproducer block configured to reproduce the stream data with said data structure from the information medium, and a decoder block configured to decode the stream data reproduced by said reproducer block.

Discussion of Rejection under 35 U.S.C. 103(a)

Saeki does not disclose or suggest amended Claim 20. Saeki is directed to an optical disc⁶ including a video object (VOB) that includes video object units (VOBU's), each of which includes a plurality of video packs (V_PCK's).⁷ Saeki discloses that each video pack includes a pack header and a packet header.⁸

However, in contrast to amended Claim 20, Saeki fails to disclose or suggest a data structure to be stored on an information medium including: a stream object, formed of the stream data, including at least one first data unit, at least one second data unit having the at least one first data unit, and at least one third data unit having the at least one second data unit, the at least one third data unit storing header information relating to the at least one first data unit in the at least one third data unit.

Further, as acknowledged in the Office Action, Saeki does not disclose recording time stamp information, and management information indicating an arrival time of a first packet of

⁶ Saeki at Figure 1.

⁷ Saeki at Figure 10.

⁸ Saeki at col. 10, lines 12-21.

one of the data units. In order to address the deficiencies of Saeki with respect to Claim 20, the Office Action turns to Lenihan.

However, Lenihan also does not disclose or suggest the data structure recited in amended Claim 20. Rather, Lenihan is directed to an apparatus for recording and playback of transport stream packets,⁹ where data is formatted according to the MPEG-2 standard.¹⁰ Lenihan, in contrast to amended Claim 20, does not disclose or suggest a data structure including a stream object, at least one first data unit, at least one second data unit, and at least one third data unit, where the at least one third data unit storing header information relates to the at least one first data unit in the at least one third data unit. As such, Lenihan fails to remedy the deficiencies of Saeki with respect to amended Claim 20. That is, even if the teachings of Lenihan and Saeki were somehow combinable as suggested in the Office Action, such a combination would still fail to disclose or suggest amended Claim 20.

In contrast to suggested combination of Lenihan and Saeki, amended Claim 20 provides for a data structure that allows access to information¹¹ regarding transport packets¹² without requiring access to packet-level data.¹³ In other words, header information is positioned in a different data hierarchy than the data unit it relates to. In this way, a data structure facilitating efficient searching of recorded stream data is provided.¹⁴

Conclusion

As such, amended Claim 20 is patentable over any combination of Lenihan and Saeki. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection

⁹ Lenihan at Figure 2.

¹⁰ Lenihan from col. 3, line 63, to col. 5, line 39; and at Figure 1A-1D.

¹¹ e.g., Specification at (PACK HEADER 11), Figure 1(c), and Figures 1(a) and 1(b).

¹² e.g., Specification at (TRANSPORT PACKET 1a), Figure 1(g).

¹³ e.g., Specification at Figure 1(g).

¹⁴ e.g., Specification at page 18, lines 6-23, and page 20, lines 4-23.¹⁴ e.g., Specification at page 18, lines 6-23, and page 20, lines 4-23.

of Claim 20 under 35 U.S.C. 103(a). Claims 21-24 depend from Claim 20 and are therefore patentable at least for the reasons discussed above. Further, Claims 25-31 recite features substantially similar to those of amended Claim 20 such that Claims 25-31 are also patentable at least for the reasons discussed above.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Finally, the attention of the Patent Office is directed to the change of address of Applicants' representative, effective January 6, 2003:

Oblon, Spivak, McClelland, Maier & Neustadt, P.C.
1940 Duke Street
Alexandria, VA 22314.

Please direct all future communications to this new address.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER AND NEUSTADT, P.C.


Gregory J. Maier
Registration No. 25,599
James J. Kulbaski
Registration No. 34,648
Attorneys of Record

22850
Tel.: (703) 413-3000
Fax: (703) 413-2220
GJM: JJK:SAM:CHY/pch
I:\TTY\CHY\204331US\204331 AM.DOC

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IN THE CLAIMS

Please amend Claims 20-25 as follows:

20. (Amended) An information recording method using an information medium which has a data area for recording stream data using data packets and data units, each of the data units being larger than the data packets, and a management area for recording management information, a data structure to be stored on said information medium including:

a stream object, formed of the stream data, including at least one first data unit, at least one second data unit having the at least one first data unit, and at least one third data unit having the at least one second data unit, the at least one third data unit storing header information relating to the at least one first data unit in the at least one third data unit,

said method comprising [the steps of]:

constituting the stream data by [a plurality] one or more of the data units;

constituting each of the data units by one or more of the data packets, at least one of the data packets [recording] having predetermined time stamp information;

constituting the management information including information indicating an arrival time of a first packet [of a first one] of one of the data units; and recording the stream data in the data area and the management information in the management area of the information medium.

21. (Amended) A method according to claim 20, further comprising [the step of]:

recording, in the management area, at least a time difference value corresponding to a difference between a first time stamp recorded in a first data unit and a second time stamp recorded in a second data unit, said first and second data units being included in the plurality of said data units.

22. (Amended) A method according to claim 21, further comprising [the step of]: determining the time difference value by rounding to a predetermined number of effective digits a difference between a time information value corresponding to the second time stamp and a time information value corresponding to the first time stamp.

23. (Amended) A method according to claim 21, further comprising [the step of]: computing the time difference value using a value of the first time stamp recorded in a first one of the data packets located in each of the data units.

24. (Amended) A method according to claim 21, further comprising [the steps of]: recording a time stamp in one of the data packets at an end of a last one of the data units included in the stream data indicating an arrival time of a last one of the data packets in the last one of the data units; and

computing the time difference value using the arrival time of the last one of the data packets.

25. (Amended) A [memory] information medium containing data structures for recording stream data using data packets and data units, comprising:

a data structure stored in said memory including,
[a plurality] one or more of the data units included in the stream data, each one of the [plurality of] data units including one or more data packets [which] configured to record time stamp information, and

management information including information indicating an arrival time of a first packet [of a first one of the plurality] of one of the data units, wherein,

[the memory is a memory device which] said information medium has a data area for recording the stream data using the one or more data packets, [each] one of the [plurality of] data units being larger than the one or more data packets, and a management area for recording [the] management information [that pertains to the stream data], and said data structure includes a stream object formed of the stream data, including at least one first data unit, at least one second data unit having the at least one first data unit, and at least one third data unit having the at least one second data unit.